

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: WETLAND MANAGEMENT

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CODE NO.: FOR333-3

SEMESTER: V

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PROGRAM: INTEGRATED RESOURCE MANAGEMENT TECHNOLOGY

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AUTHOR: H. COOPER

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DATE: AUGUST 1995

PREVIOUS OUTLINE DATED: NEW

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APPROVED:

  
DEAN

  
DATE

WETLAND MANAGEMENT

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TOTAL CREDITS HOURS: 48

PREREQUISITE(S):

**I. PHILOSOPHY/GOALS:**

This course provides the biological background for management of waterfowl, wetland habitat and aquatic fur-bearers. Students will evaluate several local wetland types, assess their limitations and design a plan for their enhancement to optimize recreational, aesthetic and economic values.

**II. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):**

Upon successful completion of this course the student will:

- 1) State and describe the classes of wetlands in North America.
- 2) Describe values of wetlands and major losses of wetland areas.
- 3) Identify and discuss the role of biological components of wetlands.
- 4) Describe techniques used for evaluating wetlands.
- 5) Discuss methods and role of water level control.
- 6) Describe physical, chemical and biological methods of vegetation control.
- 7) State habitat requirements and methods of habitat enhancement of game and non-game wildlife in wetlands.

**III. TOPICS TO BE COVERED:**

- 1) Wetlands and their roles in Ecosystems
- 2) Biological Components of Wetlands
- 3) Wetland Evaluation
- 4) Water Level Control
- 5) Vegetation Management
- 6) Habitat Improvement for Game and non-game wildlife.

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#### IV. LEARNING ACTIVITIES/REQUIRED RESOURCES

##### Topic/Unit 1 - Wetlands and their roles in Ecosystems

##### Learning Activities:

- 1.0 Define a wetland
- 1.1 Classify and state 4 characteristics of each class of wetland
- 1.2 Describe 10 values of wetlands and the major methods of wetland loss

##### Resources:

- Ref. 2 - Chapter 1
- Ref. 5 - Chapter 3

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##### Topic/Unit 2 - Biological Components of Wetlands

##### Learning Activities:

- 2.0 Identify indicator species of aquatic vegetation, macro-invertebrates, reptiles, waterfowl and mammals using wetland habitats
- 2.1 State the role and requirements of the above species.

##### Resources:

- Ref. 1
- Ref. 5 - Chapter 7
- Ref. 8 - Handouts
- Ref. 4
- Ref. 7

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##### Topic/Unit 3 - Wetland Evaluation

##### Learning Activities:

- 3.0 Perform a wetland evaluation by the "Ontario Wetland Habitat Evaluation" method
- 3.1 Explain any 2 other Wetland Habitat Evaluation Method.

##### Resources:

Wetland Evaluation for Ontario

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IV. LEARNING ACTIVITIES/REQUIRED RESOURCES: (cont'd)

Topic/Unit 4 - Water Level Control

Learning Activities:

- 4.0 Describe 5 methods of water level control in wetlands
- 4.1 State advantages and disadvantages of devices for controlling water level.
- 4.2 Discuss the impact of water level control in wetlands.

Resources:

- Ref. 2 - Chapter 3
- Ref. 5 - Chapter 7

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Topic/Unit 5 - Vegetation Management

Learning Activities:

- 5.0 Describe 5 methods of physical control of vegetation in wetlands
- 5.1 Describe 3 methods of chemical control of vegetation in wetlands
- 5.2 Describe various biological control methods of aquatic vegetation

Resources:

- Ref. 2 - Chapter 4
- Ref. 2 - Chapter 5
- Ref. 3

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Topic/Unit 6 - Habitat Improvement for Game and non-game wildlife

Learning Activities:

- 6.0 Discuss habitat needs of furbearers, waterfowl, game wildlife and non-game wildlife in wetlands
- 6.1 Make a comprehensive habitat enhancement plan for selected species of wildlife

Resources:

- Ref. 2 - Chapters 6/7
  - Ref. 3
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V. **EVALUATION METHODS:** (INCLUDES ASSIGNMENTS,  
ATTENDANCE REQUIREMENTS, ETC.)

Term tests based on theory material	= 55%
Laboratory tests	= 30%
Assignments	= 15%

**Assignment descriptions:**

1. Each student will research and write a technical report on one of the following wetland-related topics. Format, technical style should be similar to co-op report requirements. Suggested length - 6-8 pages. Reports will form the basis for lecture material later in the course. Report topics:
  1. Vegetation management by controlled burning
  2. Vegetation management by Explosives
  3. Use of fertilizers and liming in wetlands
  4. Use of herbicides in wetlands
  5. Biological control of vegetation in wetlands
  6. Conflicts in use: wetland decline and degradation in Ontario (Canada?)
  7. Water level fluctuation in wetlands: advantages and disadvantages
  8. Legal aspects of wetland manipulation
  9. Wetland policy for Ontario: a critique
  10. Federal Policy for Wetland Conservation: a critique
  11. Lead shot vs. alternative shot types
  12. Game farms to increase wildlife-related recreation and products
  13. Wolf control in the present and future (Canada-wide)
  14. Ontario fur harvesting system - a dinosaur?
2. Students will hand in a short summation or evaluation after each of the field exercises that we do. eg. wetland cruise, Seney wildlife refuge. Format for these will be handed out before the exercise.
3. A major wetland evaluation will take place at field camp. Maps, data sheets etc. must be submitted.

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V. **EVALUATION METHODS:** (INCLUDES ASSIGNMENTS,  
ATTENDANCE REQUIREMENTS, ETC.) cont'd

**Laboratory Sessions:**

1. Review of aquatic plant identification and field test each time out.
2. Waterfowl (again) - Ducks up close and at a distance  
- Geese up close and at a distance
3. Fur-bearers - whole, skulls, furs
4. Parasites and diseases
5. Waterfowl anatomy and physiology
6. Firearm anatomy & handling
7. Participation in "Volunteer" activities

**Grading:**

For Practical Tests

For all else

A+ = 95%+  
A = 90-94%  
B = 85-89%  
C = 80-84%  
R < 80%

A+ = 85%+ consistently  
A = 80-84%  
B = 70-79%  
C = 60-69%  
R = <60%

VI. **PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the instructor.

VII. **RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY:**

1. Bellrose, F.C., 1980. Ducks, Geese and Swans of N.A., 3rd Ed., Stackpole, Penn. 540 pp.
2. Bookhout, T.A., E. 1994, Research and Management Techniques for Wildlife and Habitats, Fifth ed., The Wildlife Society, Bethesda, Md. 740 pp.
3. Linde, A.F., 1969. Techniques for Wetland Management. Department of Natural Resources, Madison, Wisconsin. 156 pp.
4. Novak, M., J.A. Baker, M.E. Obbard, B. Malloch ed. 1987, Wild Furbearer Management and Conservation in North America. Ontario Trappers Association, North Bay, Ont. 1150 pp.
5. O.M.N.R. 1987, Community Wildlife Involvement Program Field Manual. Toronto 520 pp.

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VII. RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY: (cont'd)

6. Payne, Neil F. 1992. Techniques for Wildlife Habitat Management of Wetlands. McGraw-Hill Inc. Toronto 549 pp.
7. Rue, L.L. III, 1980. Fur-bearing Animals of North America. Crown publ. N.Y. 343 pp.
8. U.S.D.I. 1988-1994. Waterfowl Management Handbook. U.S. Department of the Interior, Washington, D.C.; Series of Fish & Wildlife leaflets.
9. U.S. Forest Service, 1969. Wildlife Habitat Improvement Handbook, U.S.D.A. Washington, 200 pp.

VIII. SPECIAL NOTES

Students with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.